

# Leukaemia Section

## Short Communication

### t(3;11)(q27;q23) POU2AF1/BCL6

Jean-Loup Huret

Genetics, Dept Medical Information, University of Poitiers, CHU Poitiers Hospital, F-86021 Poitiers, France (JLH)

Published in Atlas Database: January 2013

Online updated version : <http://AtlasGeneticsOncology.org/Anomalies/t0311q27q23ID2016.html>

DOI: 10.4267/2042/50196

This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 2.0 France Licence.  
© 2013 Atlas of Genetics and Cytogenetics in Oncology and Haematology

## Clinics and pathology

### Disease

Non Hodgkin lymphoma

### Clinics

Four cases to date: 3 cases of follicular lymphoma (FL) (Roumier et al., 2000) and one case of peripheral T-cell lymphoma (T-cell NHL) (Schlegelberger et al., 1994). This translocation has been also detected in Karpas 231 cell line (Galiègue-Zouitina et al., 1995; Galiègue-Zouitina et al., 1996). The 3 FL cases were female patients; the T-cell NHL case was a 38-year-old male patient.

## Cytogenetics

### Cytogenetics morphological

A complex karyotype was found in all the four cases. A t(14;18)(q32;q21) was found in the 3 FL cases, a trisomy 12 in two of these. Other known recurrent abnormalities were: + 7, del(6q), del(13q), i(17q), + 18, found in one case each.

## Genes involved and proteins

### Note

The gene rearrangement was determined in Roumier et al., 2000, Galiègue-Zouitina et al., 1995; Galiègue-Zouitina et al., 1996.

### BCL6

#### Location

3q27.3

#### Protein

706 amino acids; composed of a NH<sub>2</sub>-term BTB/POZ domain (amino acids 1-130 (32-99 according to Swiss-

Prot) which mediates homodimerization and protein-protein interactions with other corepressors (including HDAC1 and NCOR2/SMRT to constitute a large repressing complex, another transcription repression domain (191-386), PEST sequences (300-417) with a KKYK motif (375-379), and six zinc finger at the C-term (518-541, 546-568, 574-596, 602-624, 630-652, 658-681), responsible for sequence specific DNA binding.

Transcription repressor; recognizes the consensus sequence: TTCCT(A/C)GAA (Albagli-Curiel, 2003).

Role in germinal centers of lymphoid follicles. BCL6 prevents ATM and TP53 to induce apoptosis in response to DNA rearrangements such as somatic hypermutation and class switch recombination.

Therefore essential for normal B cell development.

### POU2AF1

#### Location

11q23.1

#### Note

POU2AF1 is also named BOB1 or OBF1.

#### Protein

B-cell specific transcriptional coactivator: involved in the transcription of immunoglobulin genes. Associates with POU2F1 (OCT1) or POU2F2 (OCT2).

## Result of the chromosomal anomaly

### Hybrid gene

#### Description

5' POU2AF1- 3' BCL6 and 5' BCL6 - 3' POU2AF1, leading to two fusion transcripts; breakpoint in BCL6 intron 1.

## **Fusion protein**

### **Description**

No fusion protein, but promoter exchange between both partner genes.

## **References**

Schlegelberger B, Himmler A, Bartles H, Kuse R, Sterry W, Grote W. Recurrent chromosome abnormalities in peripheral T-cell lymphomas. *Cancer Genet Cytogenet.* 1994 Nov;78(1):15-22

Galiègue-Zouitina S, Quief S, Hildebrand MP, Denis C, Lecocq G, Collyn-d'Hooghe M, Bastard C, Yuille M, Dyer MJ, Kerckaert JP. Fusion of the LAZ3/BCL6 and BOB1/OBF1 genes by t(3; 11) (q27; q23) chromosomal translocation. *C R Acad Sci III.* 1995 Nov;318(11):1125-31

Galiègue Zouitina S, Quief S, Hildebrand MP, Denis C, Lecocq G, Collyn-d'Hooghe M, Bastard C, Yuille M, Dyer MJ, Kerckaert JP. The B cell transcriptional coactivator BOB1/OBF1 gene fuses to the LAZ3/BCL6 gene by t(3;11)(q27;q23.1) chromosomal translocation in a B cell leukemia line (Karpas 231). *Leukemia.* 1996 Apr;10(4):579-87

Roumier C, Galiègue-Zouitina S, Bastard C, Soenen V, Laï JL, Denis C, Buchonnet G, Kerckaert JP, Cosson A, Fenaux P, Preudhomme C. FISH analysis with a YAC probe improves detection of LAZ3/BCL6 rearrangement in non-Hodgkin's lymphoma. *Hematol J.* 2000;1(2):117-25

Albagli-Curiel O. Ambivalent role of BCL6 in cell survival and transformation. *Oncogene.* 2003 Jan 30;22(4):507-16

---

*This article should be referenced as such:*

Huret JL. t(3;11)(q27;q23) POU2AF1/BCL6. *Atlas Genet Cytogenet Oncol Haematol.* 2013; 17(6):433-434.

---